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Comparisons of Hospitalizations for Selected Cardiovascular and Respiratory Disease by Tobacco Use Status, Montana, 2008-2011[1]

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(a) custome lothsome to the eye, hatefull to the Nose, harmefull to the braine, dangerous to the Lungs, and in the blacke stinking fume thereof, neerest resembling the horrible Stigian smoke of the pit that is bottomelesse.

-King James VI, A Counterblaste to Tobacco, 1604

In 2011, 22.1% (95% Confidence Interval: 20.8%-23.4%) of Montana adult residents were smokers and 7.1% (6.4%-7.9%) were smokeless tobacco users.[2] The per capita direct medical costs for smoking are $277 per year in direct Montana.[3] This report compares hospitalizations between current tobacco users, former tobacco users, and individuals who have never used tobacco for three categories of primary diagnosis which are considered to be directly caused by current tobacco use: ischemic heart disease (ICD-9-CM: 410-414), cerebrovascular disease (includes stroke, ICD-9-CM: 430-438), and chronic obstructive pulmonary disease (COPD, ICD-9-CM: 490-496).[4]

We tabulated hospitalizations to adult (aged 18 years and over) Montana residents in the Montana Hospital Discharge Data System with a primary diagnosis code for ischemic heart disease, cerebrovascular disease, or COPD from 2008-2011. We considered individuals to be current tobacco users if there was a secondary diagnosis for current tobacco use coded from the medical record (ICD-9-CM: 305.1) and former tobacco users if there was a code for personal history of tobacco use (ICD-9-CM: V15.82). Very few ($n < 5$) hospitalizations had indication of both current and former tobacco use; we classified those individuals as current tobacco users. ICD-9-CM codes are for tobacco use in general and do not distinguish between smoking or smokeless tobacco. ICD-9-CM codes are effective at identifying smoking status; whether or not these codes are effective at identifying smokeless tobacco use is not known.[5]

[1] The Montana Hospital Discharge Data System (MHDDS) receives annual de-identified hospital discharge data sets through a Memorandum of Agreement with the Montana Hospital Association. Most hospitals in Montana participate in voluntary reporting from their Uniform Billing forms, version 2004. The MHDDS receives information on more than 90% of inpatients admissions in the states. It does not receive data on emergency department visits or outpatient procedures at this time.

[2] Montana Behavioral Risk Factor Surveillance System, 2011, http://www.brfss.mt.gov/Data/data.php

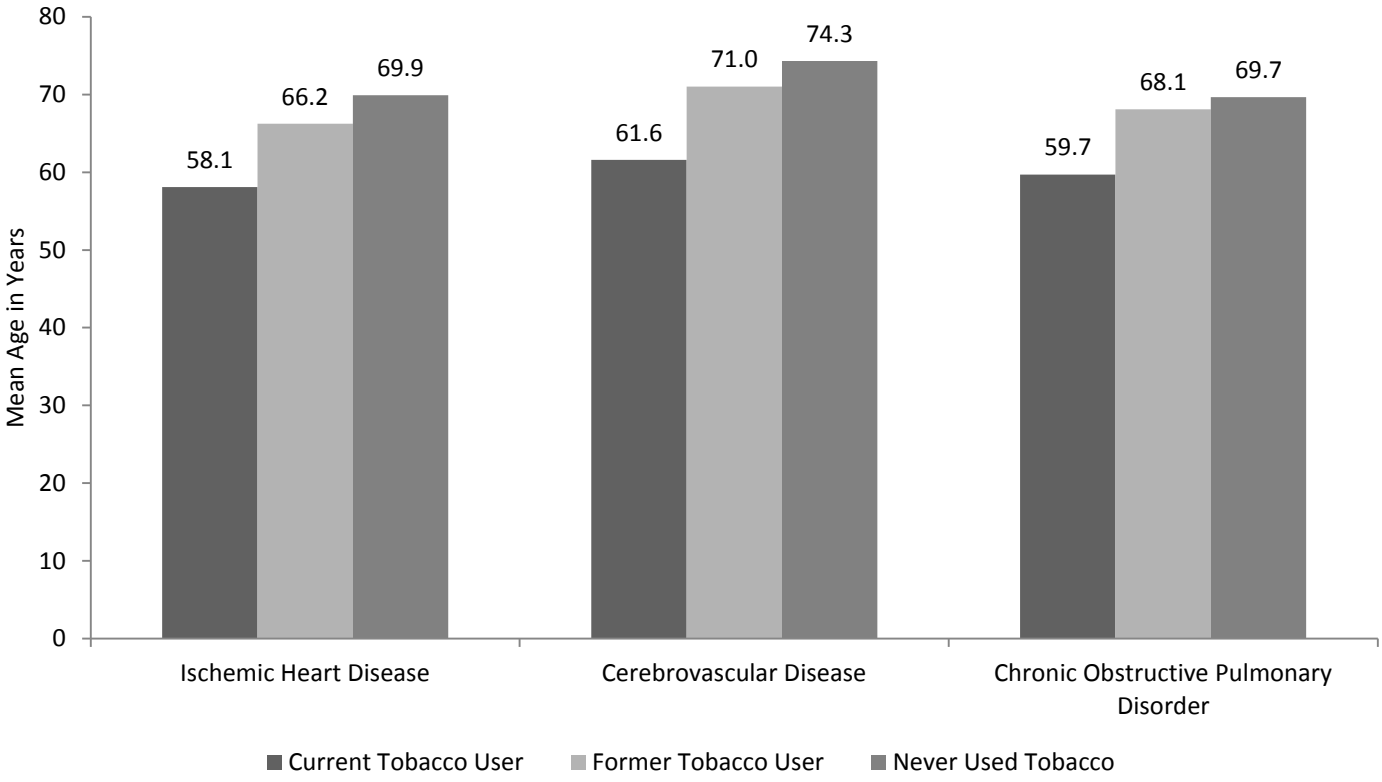
[3] Montana Tobacco Use Prevention Program, http://tobaccofree.mt.gov/

[4] The Montana Hospital Discharge Data System (MHDDS) receives annual de-identified hospital discharge data sets through a Memorandum of Agreement with the Montana Hospital Association and the Montana State Hospital at Warm Springs. Most hospitals in Montana participate in voluntary reporting of discharge data from their Uniform Billing Forms, version 2004 (UB-04). The MHDDS receives information on more than 95% of the inpatient admissions in the state. It does not receive data on Emergency Department visits at this time.; http://www.icd9data.com/

[5] Wiley LK et al. 2013. ICD-9 tobacco use codes are effective identifiers of smoking status. *J Am Med Inform Assoc* 2012-001557

Hospitalizations to current tobacco users occurred at much younger ages than hospitalizations to individuals who never used tobacco (Figure 1). For ischemic heart disease, cerebrovascular disease, and COPD the difference in mean age was 11.8, 12.7, and 10.0 years, respectively. Former tobacco users were hospitalized at older ages than current tobacco users, although the mean age was still less than that for those who never used tobacco. These earlier ages at hospitalization are consistent with the observation that smoking is associated with a substantial reduction in lifespan.[6] The higher mean age for former tobacco users compared to current users is consistent with findings that ceasing tobacco use decreases adverse health effects related to tobacco.[7]

Figure 1. Age at Hospitalization by Tobacco Use Status,
Montana Hospital Discharge Data System, 2008-2011

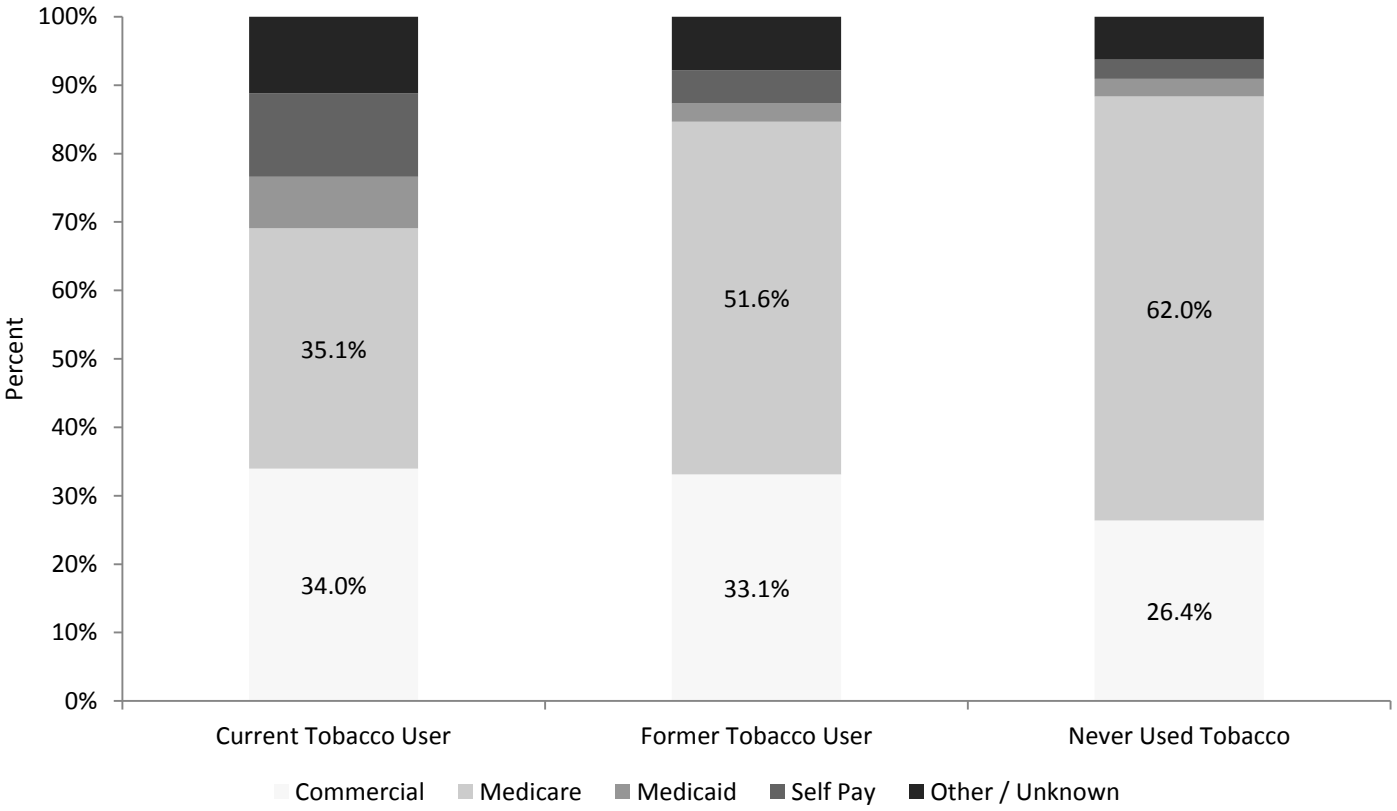


[6] Prabhat J et al. 2013. 21st-Century Hazards of Smoking and Benefits of Cessation in the United States. *N Engl J Med* 368:341-350; http://www.cdc.gov/mmwr/preview/mmwrhtml/mm5745a3.htm;

[7] http://www.cdc.gov/tobacco/data_statistics/fact_sheets/cessation/quitting/

Because current tobacco users are hospitalized at younger ages than former users or those who never used tobacco, their health care burden is more likely to be borne by Medicaid (8% vs. 5% and 3%) or self-pay (12% vs. 5% and 3%), and less likely to be borne by Medicare (35% vs. 52% and 62%) (Figure 2).

Figure 2. Percentage of Hospitalizations by Primary Payer and Tobacco Use Status, Montana Hospital Discharge Data System, 2008-2011



Tobacco users require hospitalization for chronic diseases such as ischemic heart disease, cerebrovascular disease, and COPD at substantially younger ages than non-users. Hospitalizations to these younger individuals are a preventable burden on the healthcare system.

The Montana Tobacco Quit Line is a free program that helps tobacco users end their addiction. Quit Line counseling can more than double a smoker's chances of quitting and Quit Line counseling combined with medication (such as NRT) can more than triple chances of quitting.[1] Those who successfully quit reduce their risk for stroke, heart disease, and a number of cancers and other diseases; the risk of a heart attack decreases the very first day without tobacco.[2] More than 68,000 Montanans have used the Quit Line since its inception in 2004.[3] The Quit Line provides the following services:

- **FREE** telephone-bases service for all Montanans
- **FREE** personalized quit plans
- **FREE** cessation coaching
- **FREE** Nicotine Replacement Therapy, including gum, patches, and lozenges
- ***Discounted*** Chantix and Bupropion prescriptions – Quit Line users pay less than one-third the retail cost

MONTANA TOBACCO QUIT LINE
1-800-QUIT-NOW
1-800-784-8669

[1]Fiore, MC, et al., Treating Tobacco Use and Dependence: 2008 Update – Clinical Practice Guideline, U.S. Public Health Service, May 2008.
[2] The Health Benefits of Smoking Cessation: A Report of the Surgeon General, United States Public Health Service. Office of the Surgeon General; DHHS Publication No. (CDC) 90-8416; 1990.
[3] National Jewish Health Montana Tobacco Quit Line June 2013 report.

For information about the Montana Hospital Discharge Data System, please contact Cody L Custis, Epidemiologist,
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